

II. AMENDMENTS TO THE CLAIMS

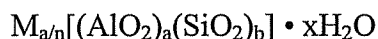
This listing of claims will replace all prior versions, and listings, of claims in the application:

CLAIMS:

1 – 32. (Cancelled).

33. (Currently Amended) A ~~wellbore spacer~~ composition for forming a wellbore spacer fluid comprising:

a zeolite present from about 60 to 70% by weight of the composition dry materials, the zeolite being represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH₄, CH₃NH₃, (CH₃)₃NH, (CH₃)₄N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in a range of from greater than or equal to 1 to less than or equal to 5; and

x represents the number of moles of water entrained into the zeolite framework;

a clay present from about 20 to 30% by weight of the composition selected from the group consisting of kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite; and

a polymeric ~~material viscosifier or fluid loss control agent~~ present from about 1 to 3% by weight of the composition dry materials selected from the group consisting of hydroxyethylcellulose, cellulose, carboxyethylcellulose, carboxymethylcellulose, carboxymethylhydroxyethylcellulose, hydroxypropylcellulose, methylhydroxypropylcellulose, methylcellulose, ethylcellulose, propylcellulose, ethylcarboxymethylcellulose, methylethylcellulose, hydroxypropylmethylcellulose, starch, guar gum, locust bean gum, tara, konjak, karaya gum, welan gum, xanthan gum, galactomannan gums, succinoglycan gums, scleroglucan gums, tragacanth gum, arabic

gum, ghatti gum, tamarind gum, carrageenan, carboxymethyl guar, hydroxypropyl guar, carboxymethylhydroxypropyl guar, polyacrylate, polymethacrylate, polyacrylamide, maleic anhydride, methylvinyl ether copolymers, polyvinyl alcohol, and polyvinylpyrrolidone; and
a carrier fluid.

Claims 34 – 39. (Cancelled).

40. (Currently Amended) The ~~wellbore spacer~~ composition of claim 33, wherein the zeolite is selected from the group consisting of analcime, chabazite, clinoptilolite, heulandite, and natrolite.

Claims 41 – 46. (Cancelled).

47. (Currently Amended) The ~~wellbore spacer~~ composition of claim 33, further comprising an additive selected from the group consisting of diatomaceous earth and clay.

Claims 48 – 52. (Cancelled).

53. (Currently Amended) The ~~wellbore spacer~~ composition of claim 33, wherein the polymeric material ~~polymer~~ is selected from the group consisting of hydroxyethylcellulose, carboxymethylhydroxyethylcellulose and guar gum.

54. (Currently Amended) The ~~wellbore spacer~~ composition of claim 33, wherein the polymeric material ~~polymer~~ comprises hydroxyethylcellulose.

55. (Currently Amended) The ~~wellbore spacer~~ composition of claim 33, wherein the polymeric material ~~polymer~~ is selected from the group consisting of welan gum, xanthan gum, galactomannan gums, succinoglycan gums, scleroglucan gums, and cellulose and its derivatives.

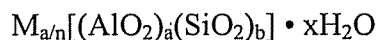
Claims 56 – 57. (Cancelled).

58. (Currently Amended) The composition of claim 33, further comprising a dispersant present from about 1 to 18% by weight of the composition ~~dry materials~~ selected from the group consisting of sulfonated styrene maleic anhydride copolymer, sulfonated vinyltoluene maleic anhydride copolymer, sodium naphthalene sulfonate condensed with formaldehyde, sulfonated acetone condensed with formaldehyde, lignosulfonates and interpolymers of acrylic acid, allyloxybenzene sulfonate, allyl sulfonate and non-ionic monomers.

Claims 59 – 105. (Cancelled).

106. (Currently Amended) A ~~wellbore spacer~~ composition for forming a wellbore spacer fluid comprising:

a zeolite present from about 60 to 70% by weight of the composition ~~dry~~ materials, the zeolite being represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH₄, CH₃NH₃, (CH₃)₃NH, (CH₃)₄N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in a range of from greater than or equal to 1 to less than or equal to 5; and

x represents the number of moles of water entrained into the zeolite framework;

a clay present from about 20 to 30% by weight of the composition selected from the group consisting of kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite; and

a dispersant present from about 1 to 18% by weight of the composition ~~dry~~ materials selected from the group consisting of sodium naphthalene sulfonate condensed with formaldehyde, sulfonated styrene maleic anhydride copolymer, sulfonated vinyltoluene maleic anhydride copolymer, sulfonated acetone condensed with formaldehyde, lignosulfonates and interpolymers of acrylic acid, allyloxybenzene sulfonate, allyl sulfonate and non-ionic monomers; ~~and~~

~~a carrier fluid.~~

Claims 107 – 109. (Cancelled).

110. (Currently Amended) The ~~wellbore spacer~~ composition of claim 106, wherein the zeolite is selected from the group consisting of analcime, chabazite, clinoptilolite, heulandite, and natrolite.

Claims 111 – 114. (Cancelled).

115. (Currently Amended) The ~~wellbore spacer~~ composition of claim 106, further comprising ~~an additive selected from the group consisting of diatomaceous earth and clay.~~

Claim 116. (Cancelled).

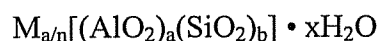
117. (Currently Amended) The ~~wellbore spacer~~ composition of claim 106, further comprising a polymeric material ~~viscosifier or fluid loss control agent~~ present from about 1 to 3% by weight of the composition ~~dry materials~~ selected from the group consisting of hydroxyethylcellulose, carboxymethylhydroxyethylcellulose, guar gum, welan gum, xanthan gum, galactomannan gums, succinoglycan gums, scleroglucan gums, and cellulose.

Claims 118-120. (Cancelled).

121. (Currently Amended) A ~~wellbore spacer~~ composition comprising:
a combination of a dry mix, a weighting material, a carrier fluid and a surfactant,
wherein:

(1) the dry mix comprises:

a zeolite present from about 60 to 70% by weight of the dry mix ~~materials~~, the zeolite being represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH₄, CH₃NH₃, (CH₃)₃NH, (CH₃)₄N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in a range of from greater than or equal to 1 to less than or equal to 5; and

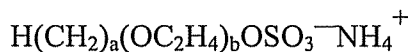
x represents the number of moles of water entrained into the zeolite framework; and

a clay present from about 20 to 30% by weight of the dry mix selected from the group consisting of kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite;

(2) the weighting material is selected from the group consisting of barite, hematite, manganese tetraoxide, ilmenite and calcium carbonate; and

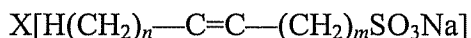
(3) the a surfactant is selected from the group consisting of:

- (a) an ethoxylated alcohol ether sulfate of the formula:

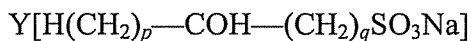


wherein a is an integer in the range of from about 6 to about 10 and b is an integer in the range of from about 3 to about 10;

- (b) a sodium salt of α -olefinic sulfonic acid which is a mixture of compounds of the formulas:



and



wherein:

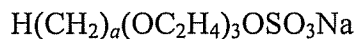
n and m are individually integers in the range of from about 6 to about 16;

p and q are individually integers in the range of from about 7 to about 17;

and

X and Y are fractions with the sum of X and Y being 1;

- (c) a composition having the formula:

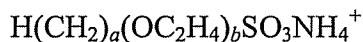


wherein:

a is an integer in the range of from about 6 to about 10;

- (d) oxyalkylated sulfonate;

- (e) an alcohol ether sulfonate of the formula:



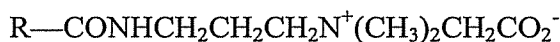
wherein:

a is an integer in the range of from about 6 to about 10; and

b is an integer in the range of from about 3 to about 10;

- (f) cocoamine betaine;

- (g) an alkyl or alkene amidopropyl betaine having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl; and

(h) an alkyl or alkene amidopropyl dimethylamine oxide surfactant having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl; and
~~a carrier fluid.~~

Claims 122 – 124. (Cancelled).

125. (Currently Amended) The ~~wellbore spacer~~ composition of claim 121, wherein the zeolite is selected from the group consisting of analcime, chabazite, clinoptilolite, heulandite, and natrolite.

Claims 126 – 127. (Cancelled).

128. (Currently Amended) The ~~wellbore spacer~~ composition of claim 121, wherein the carrier fluid comprises a fluid selected from the group consisting of an aqueous fluid, hydrocarbon-based liquids, emulsions, acids and mixtures thereof.

129. (Currently Amended) The ~~wellbore spacer~~ composition of claim 121, wherein the carrier fluid comprises water.

130. (Currently Amended) The ~~wellbore spacer~~ composition of claim 121, further comprising ~~an additive selected from the group consisting of diatomaceous earth and clay.~~

Claim 131. (Cancelled).

132. (Currently Amended) The ~~wellbore spacer~~ composition of claim 121, further comprising a polymeric material ~~viscosifier or fluid loss control agent~~ present from about 1 to 3% by weight of the dry mix materials selected from the group consisting of hydroxyethylcellulose, carboxymethylhydroxyethylcellulose, guar gum, welan gum, xanthan gum, galactomannan gums, succinoglycan gums, scleroglucan gums, and cellulose.

Claims 133-134. (Cancelled).

135. (Currently Amended) The wellbore spacer composition of claim 33, wherein the composition has a 300/3 ratio of from 2 to 6.

136. (Currently Amended) The wellbore spacer composition of claim 106, wherein the composition has a 300/3 ratio of from 2 to 6.

137. (Currently Amended) The wellbore spacer composition of claim 121, wherein the composition has a 300/3 ratio of from 2 to 6.

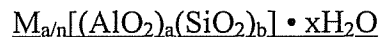
Claim 138. (Cancelled).

139. (NEW) A composition comprising:

a combination of a dry mix, a weighting material and a carrier fluid, wherein:

(1) the dry mix comprises:

a zeolite present from about 60 to 70% by weight of the dry mix, the zeolite being represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH₄, CH₃NH₃, (CH₃)₃NH, (CH₃)₄N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in a range of from greater than or equal to 1 to less than or equal to 5; and

x represents the number of moles of water entrained into the zeolite framework; and

a clay present from about 20 to 30% by weight of the dry mix selected from the group consisting of kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite; and

a polymeric material present from about 1 to 3% by weight of the dry mix selected from the group consisting of hydroxyethylcellulose, cellulose, carboxyethylcellulose, carboxymethylcellulose, carboxymethylhydroxyethylcellulose, hydroxypropylcellulose, methylhydroxypropylcellulose, methylcellulose, ethylcellulose, propylcellulose, ethylcarboxymethylcellulose, methylethylcellulose, hydroxypropylmethylcellulose, starch, guar gum, locust bean gum, tara, konjak, karaya gum, welan gum, xanthan gum, galactomannan gums, succinoglycan gums, scleroglucan gums, tragacanth gum, arabic gum, ghatti gum, tamarind gum, carrageenan,

carboxymethyl guar, hydroxypropyl guar, carboxymethylhydroxypropyl guar, polyacrylate, polymethacrylate, polyacrylamide, maleic anhydride, methylvinyl ether copolymers, polyvinyl alcohol, and polyvinylpyrrolidone; and
(2) the weighting material is selected from the group consisting of barite, hematite, manganese tetraoxide, ilmenite and calcium carbonate.

140. (NEW) The composition of claim 139, wherein the carrier fluid comprises a fluid selected from the group consisting of an aqueous fluid, hydrocarbon-based liquids, emulsions, acids and mixtures thereof.

141. (NEW) The composition of claim 140, wherein the carrier fluid comprises water.

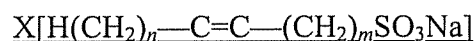
142. (NEW) The composition of claim 139, wherein the carrier fluid comprises from about 45 to 95% by volume of the composition.

143. (NEW) The composition of claim 139, wherein the carrier fluid comprises from about 65 to 75% by volume of the composition.

144. (NEW) The composition of claim 139, further comprising a surfactant selected from the group consisting of nonylphenol ethoxylates, alcohol ethoxylates, sugar lipids, α -olefinsulfonates, alkylpolyglycosides, alcohol sulfates, salts of ethoxylated alcohol sulfates, alkyl amidopropyl dimethylamine oxides and alkene amidopropyl dimethylamine oxides.

145. (NEW) The composition of claim 144, wherein the surfactant is selected from the group consisting of:

- (a) a sodium salt of α -olefinic sulfonic acid which is a mixture of compounds of the formulas:



and



wherein:

n and m are individually integers in the range of from about 6 to about 16;

p and q are individually integers in the range of from about 7 to about 17; and

X and Y are fractions with the sum of X and Y being 1;

(b) a composition having the formula:



wherein:

a is an integer in the range of from about 6 to about 10;

(c) oxyalkylated sulfonate;

(d) an alcohol ether sulfonate of the formula:



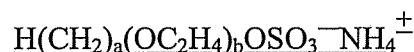
wherein:

a is an integer in the range of from about 6 to about 10; and

b is an integer in the range of from about 3 to about 10;

(e) cocoamine betaine;

(f) an ethoxylated alcohol ether sulfate of the formula:



wherein a is an integer in the range of from about 6 to about 10 and b is an integer in the range of from about 3 to about 10;

(g) an alkyl or alkene amidopropyl betaine having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl;

and

(h) an alkyl or alkene amidopropyl dimethylamine oxide surfactant having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl.

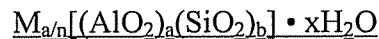
146. (NEW) The composition of claim 139, wherein the composition has a 300/3 ratio of from 2 to 6.

147. (NEW) A composition comprising:

a combination of a dry mix, a weighting material and a carrier fluid, wherein:

(1) the dry mix comprises:

a zeolite present from about 60 to 70% by weight of the dry mix, the zeolite being represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH₄, CH₃NH₃, (CH₃)₃NH, (CH₃)₄N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in a range of from greater than or equal to 1 to less than or equal to 5; and

x represents the number of moles of water entrained into the zeolite framework;

a clay present from about 20 to 30% by weight of the dry mix selected from the group consisting of kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite; and

a dispersant present from about 1 to 18% by weight of the dry mix selected from the group consisting of sodium naphthalene sulfonate condensed with formaldehyde, sulfonated styrene maleic anhydride copolymer, sulfonated vinyltoluene maleic anhydride copolymer, sulfonated acetone condensed with formaldehyde, lignosulfonates and interpolymers of acrylic acid, allyloxybenzene sulfonate, allyl sulfonate and non-ionic monomers; and

(2) the weighting material is selected from the group consisting of barite, hematite, manganese tetraoxide, ilmenite and calcium carbonate.

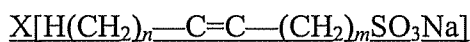
148. (NEW) The composition of claim 147, wherein the carrier fluid comprises a fluid selected from the group consisting of an aqueous fluid, hydrocarbon-based liquids, emulsions, acids and mixtures thereof.

149. (NEW) The composition of claim 147, wherein the carrier fluid comprises water.

150. (NEW) The composition of claim 147, further comprising a surfactant selected from the group consisting of nonylphenol ethoxylates, alcohol ethoxylates, sugar lipids, α -olefinsulfonates, alkylpolyglycosides, alcohol sulfates, salts of ethoxylated alcohol sulfates, alkylamidopropyl dimethylamine oxides and alkene amidopropyl dimethylamine oxides.

151. (NEW) The composition of claim 150, wherein the surfactant is selected from the group consisting of:

- (a) a sodium salt of α -olefinic sulfonic acid which is a mixture of compounds of the formulas:



and



wherein:

n and m are individually integers in the range of from about 6 to about 16;

p and q are individually integers in the range of from about 7 to about 17; and

X and Y are fractions with the sum of X and Y being 1;

- (b) a composition having the formula:



wherein:

a is an integer in the range of from about 6 to about 10;

- (c) oxyalkylated sulfonate;

- (d) an alcohol ether sulfonate of the formula:



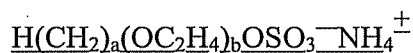
wherein:

a is an integer in the range of from about 6 to about 10; and

b is an integer in the range of from about 3 to about 10;

- (e) cocoamine betaine;

- (f) an ethoxylated alcohol ether sulfate of the formula:



wherein a is an integer in the range of from about 6 to about 10 and b is an integer in the range of from about 3 to about 10;

(g) an alkyl or alkene amidopropyl betaine having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl;
and

(h) an alkyl or alkene amidopropyl dimethylamine oxide surfactant having the
formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl.

152. (NEW) The composition of claim 147, wherein the composition has a 300/3 ratio of
from 2 to 6.